VTOUCH touchscreen
VT and VTT series

Your Distributor: **Novo-Parts Kft. Hungary**

www.novoparts.hu

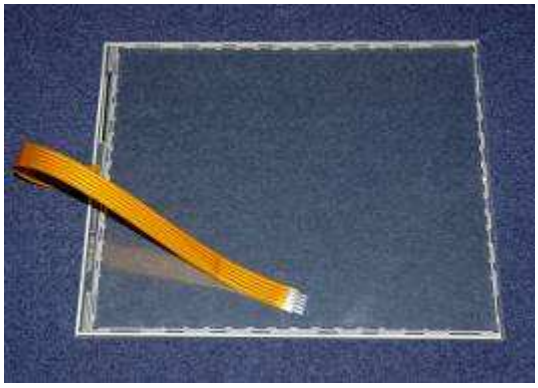
Part Number: **VR-151-03-V11**

Description: **5 Wires Resistive Touch Screen**

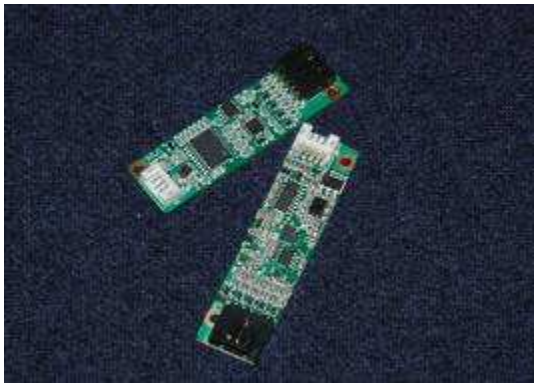
5-Wire Resistive Touch Screen

Index

- Part 1. Features & Technical Specification 3
- Part 2. Mechanical Drawings and Connection Sketch..... 5
- Part 3. Optical 5
- Part 4. Environmental..... 5
- Part 5. Electrical..... 7
- Part 6. Cosmetic Quality 8
- Part 7. Cautions..... 8
- Part 8. Others 9
- Part 9. Cable Information 9
- Part 10. Integration Procedure 14
- Part 11. Install Touch System Driver 14
- Part 12. How to Test the 5-Wires Resistive Touchscreen 18



VTouch 5-Wire Resistive Sensor



VTouch 5-Wires Resistive Controller

• Part 1. Features & Technical Specification

1. Product Features

- **High-quality raw materials**
- **World-predominating technologies**
- **High sensitiveness**
- **High positional accuracy**
- **Superb reliability**
- **Favorable life time**
- **Upstanding sealability**

2. 5-Wires Resistive Touchscreen Technical Specification

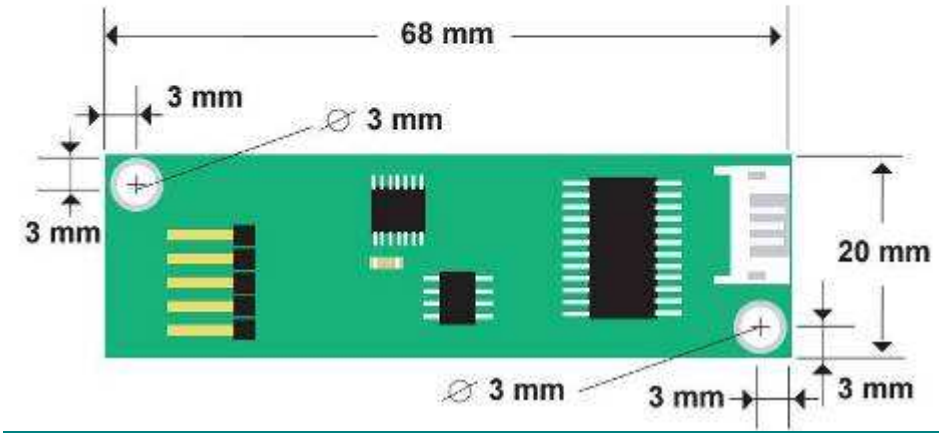
Technology	5 wire Resistive Touch Screen
Construction	Glass, uniform resistive coating, polyester coversheet, transparent insulating dots, conductive coating
Deviation of Error	Less than 3.5 mm
Resolution	4096 X 4096
Touchpoint Density	100,000 touchpoints/in2 (15,500 touchpoints/cm2)
Touch Activation Force	20-120 grams)
Response Time	Less than 5 milliseconds
Surface Hardness	Moths 3
Life Time	More than 35 million touches in one location without failure
MTBF	Over 50,000 hours
Dust-Proof and Water-Proof	Meet NEMA 4 and 12, and IP 65 standards
Light Transmission	≥87%
Operating Temperature	-20℃ to 80℃
Storage Temperature	-40℃ to 80℃
Operating Humidity	＜95%
Storage Humidity	＜95%
Operating Altitude	10,000 feet above sea level
Storage Altitude	50,000 feet above sea level
Chemical Resistance	Acetone, Methylene chloride, Methyl ethyl ketone, Isopropyl alcohol, Hexane, Turpentine, Mineral spirits, Unleaded Gasoline, Diesel Fuel, Motor Oil, Transmission Fluid, Antifreeze
Agency Approvals	CE, FCC, ROHS, UL
Warranty	3 years for the touch screen panel; 3 years for the controller

3. Controller Technical Specification

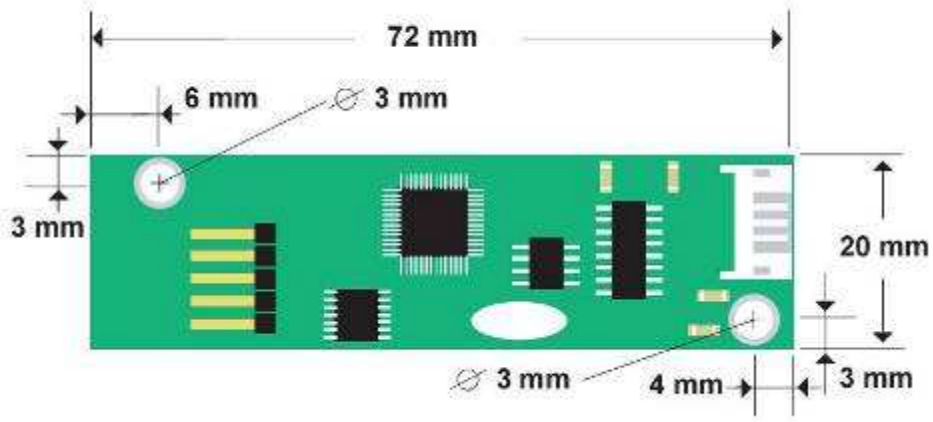
Controller Interface	USB and RS232 interface
Power Requirements	+5VDC (max. 100mA, typical 70mA, 50mV peak to peak max ripple)
Operating Temperature	0 to 70 degrees Centigrade
Storage Temperature	-40 to 80 degrees Centigrade
Relative Humidity	95% at 60 degrees Centigrade
Protocol	RS232: 9600 bauds, None parity, 8 data bits, 1 stop bit
	USB: USB 1.1 Low speed
Resolution	4096 x 4096
Accuracy Tolerance	Max. +/- 0.5% tolerance
Response Time	Max. 35 ms
Regulatory Approvals	FCC, CE
MTBF	more than 50,000 hours

Resistive Controller

5-Wire USB



5-Wire RS232/ PS2

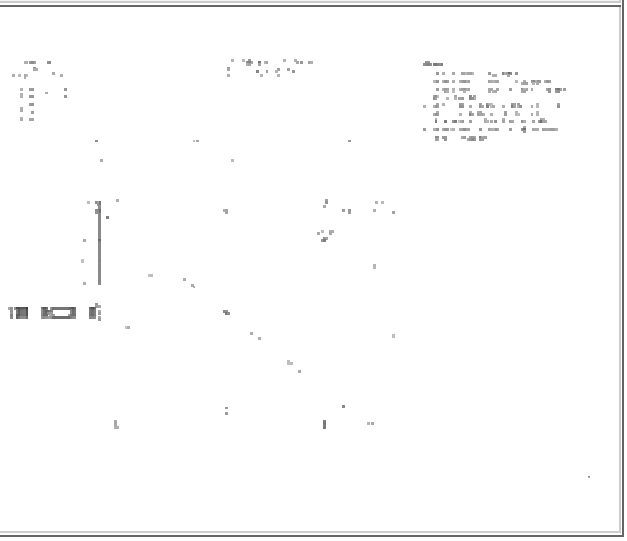


• Part 2. Mechanical Drawings and Connection Sketch

1. General Specification

ITEM	SPECIFICATION	Unit
Outline Dimension	332.88×248.88	mm
Viewing Area	314.91×237.08	mm
Active Area	310.01×232.00	mm

2. Mechanical Drawing of TR-151-03-V11

Part No		VR-151-03-V11	Products Illustration
Type		LCD, RS232	
Size		15.1″	
Thickness		3mm or 2mm and other	
Outside Dimension	Length	332.88mm	
	Width	248.88mm	
Viewing Area	Length	314.91mm	
	Width	237.08mm	
Active Area	Length	310.01mm	
	Width	232.00mm	
Special Requirement		None	

Remark:

Technical drawings for all products are available on website or at request.

The size of the touch screen sensor can be customized based on customer's specific requirement:

The length of the tail and the location of tail from touch screen panel, etc.

• Part 3. Optical

Light transparency should keep above 81%↑ under the visible wave when the wave length is 550nm.

• Part 4. Environmental

1. High Temperature Test

Put samples in a vessel at the condition of 70±2˚C for 120 hours. Then, leave them in a room temperature for 12 hours or more and measure it.

A. Resistance between leads
   30Ω< X Axis <300Ω
   30Ω< Y Axis <300Ω
B. Linearity
   X Axis: 3%↓
   Y Axis: 3%↓
C. C. Insulation Resistance
   20MΩ↑ @ DC25V

2. Low Temperature Test

Put samples in a vessel at the condition of -25±2˚C for 120 hours. Then, leave them in a room temperature for 12hours or more and measure it.

A. Resistance between leads
   30Ω< X Axis <300Ω
   30Ω< Y Axis <300Ω
B. Linearity
   X Axis: ±5%↓
   Y Axis: ±5%↓
C. Insulation Resistance
   20Ω↑ @ DC25V

3. Humidity Test

Leave samples in an environment of 60±2˚C and 90-95% relative humidity for 120 hours and then perform measurements after putting them at room temperature for 12 hours.

A. Resistance between leads
   30Ω< X Axis <300Ω
   30Ω< Y Axis <300Ω
B. Linearity
   X Axis: 3%↓
   Y Axis: 3%↓
C. Insulation Resistance
   20MΩ↑ @ DC25V

4. Thermal Shock Test

Put samples in a vessel at the condition of -25˚C for 30 minutes and then 70˚C for 30 minutes and this process is repeated 20 cycles. Then, leave them in a room temperature for 24hours or more and measure it.

A. Resistance between leads
   30Ω< X Axis <300Ω
   30Ω< Y Axis <300Ω
B. Linearity
   X Axis: 3%↓
   Y Axis: 3%↓

C. Insulation Resistance
20MΩ↑ @ DC25V

5. Resistance to chemicals (Surface hard coating).

No abnormality in external appearance.
Lightly wipe the surface with methyl alcohol, artificial perspiration and household cleanser.

6. Rubber stroke operation

10,000,000 strokes with the R8.0 silicon rubber Force: 60g, Speed: 3/sec

A. Resistance between leads
30Ω< X Axis <300Ω
30Ω< Y Axis <300Ω

B. Linearity
X Axis: 3%↓
Y Axis: 3%↓

C. Insulation Resistance
20MΩ↑ @ DC25V

7. Shock resistance

No breakage when Φ10mm steel ball is dropped on the touch panel supported with the display module from 15cm height at 1 time.

• Part 5. Electrical

1. Connector Resistive

30Ω< X Axis <300Ω
30Ω< Y Axis <300Ω

2. Insulation Resistance

20MΩ↑ @ DC25V

3. Electrostatic Endurance

No abnormal appearance after 10kv, 100Ω, 250PF electrostatic used.

4. Linearity

X Axis: 3%↓
Y Axis: 3%↓

5. Operating Voltage

3V ~ 12V DC

6. Operating Current

5mA ~ 25mA

• Part 6. Cosmetic Quality

1. Inspection Condition

A. The lightness of place: 500 LUX
B. The distance of eyeshot: 30 CM. The panel must be checked under the light transparency condition.
C. The angle of eyeshot: >60˚C
D. The light source: natural sunlight

2. Criterion

The followings are applied to viewing area. Except dot space.

1. Spot otherness	Φ ≤ 0.15mm	Ignorance
	0.15mm ≤φ≤0.25mm	≤2
	φ>0.25mm	NG
2. Scratch	w ≤0.05mm and L ≤2.0mm	Ignorance
	w ≤0.05mm 2.0mm< L ≤4.0mm	2 or less& distance >5mm
	w>0.05mm or L>4.0mm	NG
3. Cicatrices(line) L: Length W: Width	W ≤0.03mm	Ignorance
	L ≤4mm& 0.03mm ≤W ≤0.05mm	≤2 2 line distance ≤10mm
	W>0.05mm	NG
4.Edge warp	Edge warp ≤3mm	allowable
	Edge warp ≤2mm	allowable

• Part 7. Caution

In order to prevent accidental use and to guarantee the performance of product, customers are requested to keep the following.

1. Storage

A. Store the products at the temperature and humidity range presented in the specification.
B. Store the products in the state of package.
C. Do not expose the product to a direct ray of the sun.

2. Unpacking

A. Do not hold tail to take out touch panels in the package.

3. Handling

A. Use gloves and finger coat to prevent stains on the touch screen and injury by the sharp Edge of the touch screen.
B. Do not take hold of tail when handing the touchscreen.
C. Do not pile up touchpanels.
D. Do not put anything on the touchscreen.
E. Do not fold the tail.

F. Clean off the touch panel with alcohol and soft clothes when necessary
G. Prevent alcohol from penetrating into the touchscreen.
H. Do not use organic solvents except for alcohol.

4. Assembling

A. Avoid excessive force on the touchscreen.
B. Do not give unnecessary strain to the tail while assembling.

• Part 8. Others

1. If there is any question in specification, the decision depends on conferment between manufacturer and customer.

2. If there is any change in specification, can't actualize without document permit.

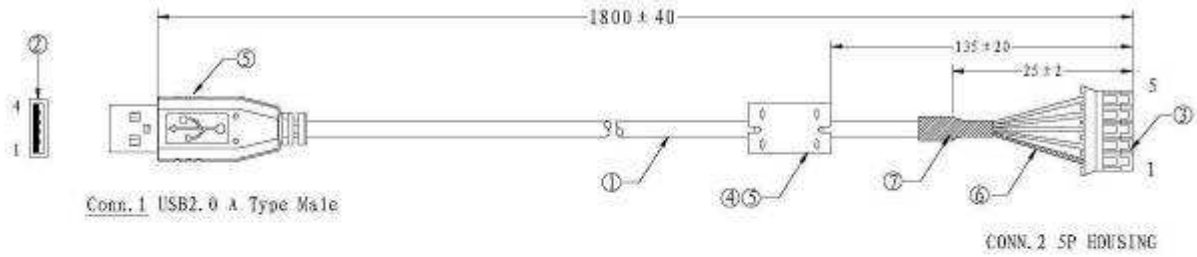
3. The specification content is different fro the individual specification one, decision bases on the latter.

• Part 9. Cable Information

1. USB

REV	DATE	REV.DIMENSION	DRAW	CHECK	APPROVE
A	08.1.11	NEW DRAWING	ZENG		

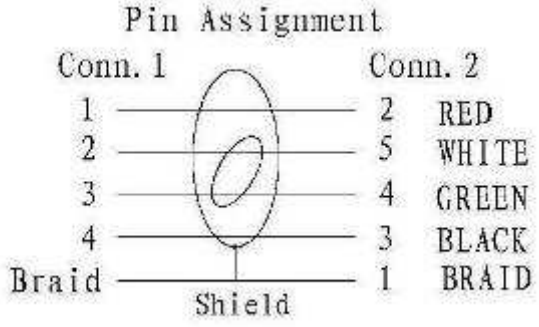
USBAM T/N:	A-002-004
铁粉芯 T/N:	C-012

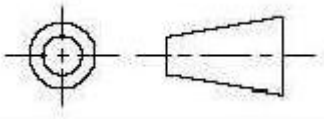


Electrical Properties:
1. Contact Resistance: 2 ohm max.
2. Insulation Resistance: 10Mega ohm
3. Hi-POT: 300V DC/10ms.
4. All Materials With RoHS Standard

MATERIAL LIST:

NO.	NAME	DESCRIPTION	UNIT	Q'TY
1	CABLE	USB2.0 28AWG*1T/P+24AWG*2C Double Shied Jacket Color: BEIGE OD: 4.4±0.15	mm	1800
2	Connector	USB A/M Male Solder Type Pin Gold Plated Insulation: WHITE Shell Nickel Plated	set	1
3	Connector	PH=2.0 JST5PIN HOUSING WITH 5PCS TERMINAL	set	1
4	FERRITE	φ10*20*φ6.5mm COLOR: BLACK	pcs	1
5	OUTSIDE MOLDING	5OP PVC PMS: BEIGE	g	12
6	TUBE	Black Shrink Wrap OD: 0.8 L: 20mm	pcs	1
7	TUBE	Black Shrink Wrap OD: 4.0 L: 12mm	pcs	1

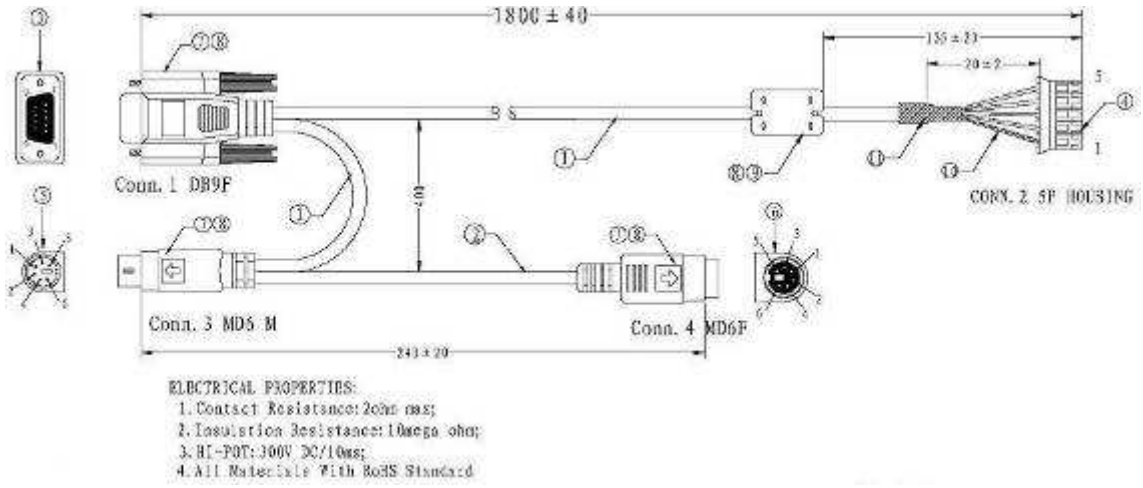


CUSTOMER:			
DWG NO:			
ITEM NO:		SCALE:NONE	DRAWN BY:ZENG
		UNIT:mm	CHECKED BY;
	PART NO:	REV:A	APPROVED BY:

2. RS232

REV	DATE	REV.DIMENSION	DRAW	CHECK	APPROVE
A	08.1.11	NEW DRAWING	ZENG		

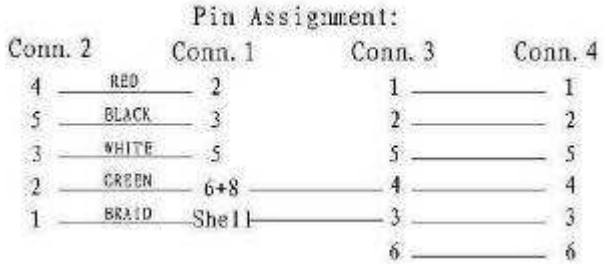
DB9F T/N:	Inner mold:B-001-015-A	MD6M T/N:	Inner mold:B-001-006-A
	Outer mold:B-001-015-B		Outer mold:B-001-006-B
MD6F T/N:	Inner mold:B-001-006-A	铁粉芯 T/N:	Outer mold:C-012
	Outer mold:B-001-006-D		

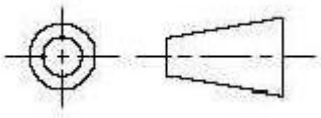


Material List:

NO	NAME	DESCRIPTION	UNIT	Q'TY
1	CABLE	USB2.0 28AWG*1T/P+24AWG*2C Double Shied Jacket Color: BEIGE OD: 4.4±0.15	mm	1800+400
2	CABLE	NON-UL 28AWG*6C+1 OD: 4.6 Color: BEIGE	mm	240
3	CONNECTOR	DB9Female Solder Type Insulation Blue	pcs	1
4	CONNECTOR	PH-2.0 JST5PIN HOUSING WITH 5PCS TERMINAL	set	1
5	CONNECTOR	MD6 Male Solder Type Insulation Black	pcs	1
6	CONNECTOR	MD6 Female Solder Type Insulation BlacK	pcs	1
7	INSIDE MOLDING	LD PE INNER JACKET	g	15
8	OUTSIDE MOLDING	50P PVC COLOR: Beige	g	40
9	FERRITE	φ10*20*φ6.5mm COLOR: BLACK	pcs	1
10	TUBE	Black Shrink Wrap OD: 0.8 L: 22mm	pcs	1
11	TUBE	Black Shrink Wrap OD: 4.0 L: 12mm	pcs	1
12	SCREW	4*49.5 METAL SCREW BEIGE COLOR	pcs	2

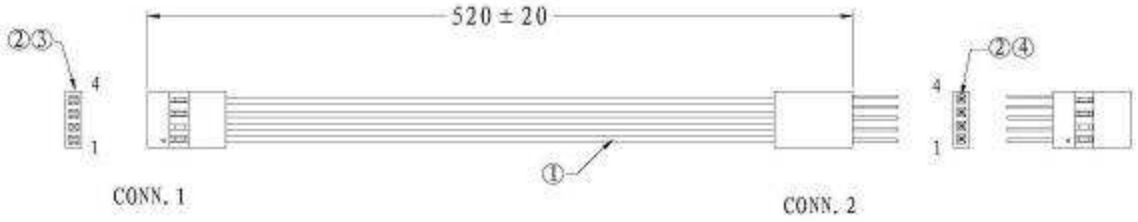
Pin Assignment:



CUSTOMER:			
DWG NO:			
ITEM NO:		SCALE:NONE	DRAWN BY:ZENG
		UNIT:mm	CHECKED BY;
	PART NO:	REV:A	APPROVED BY:

3. Line

REV	DATE	REV.DIMENSION	DRAW	CHECK	APPROVE
A	08.1.11	NEW DRAWING	ZENG		



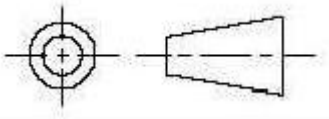
ELECTRICAL PROPERTIES:
1. Contact Resistance: 2ohm max;
2. Insulation Resistance: 10Mega ohm;
3. HI-POT: 300V DC/10ms.
4. All Materials With RoHS Standard

MATERIAL LIST:

NO.	NAME	DESCRIPTION	UNIT	Q'TY
1	CABLE	UL1007 26AWG COLOR: RED, WHITE, GREEN, BLACK	mm	4*520
2	HOUSING	杜邦PH=2.54 4P HOUSING (BLACK)	pcs	2
3	TERMINAL	杜邦PH=2.54 FEMALE TERMINAL (K2541M-GB)	pcs	4
4	TERMINAL	杜邦PH=2.54 MALE TERMINAL GOLD PLATED (K2547-GB)	pcs	4

Pin Assignment

Conn. 1		Conn. 2	
1	———	1	RED
2	———	2	WHITE
3	———	3	GREEN
4	———	4	BLACK

CUSTOMER:			
DWG NO:			
ITEM NO:		SCALE:NONE	DRAWN BY:ZENG
		UNIT:mm	CHECKED BY;
	PART NO:	REV:A	APPROVED BY:

• Part 10. Integration Procedure

1. **Connect controller with 5-wire resistive touch screen**
2. **Connect the controller to the motherboard via either USB port or RS232 port**
3. **Connect the controller to 5VDC power (USB port can provide 5 VDC Key board port or mouse port can provide 5VDC power for RS232 controller)**
4. **Install the appropriate touch system driver in correspondence with operation system, (windows XP, 2K etc.)**

• Part 11. Install Touch system Driver

1. Available Touch system Driver

Drivers can be downloaded from V Touch Driver CD or website:

- Windows 2000 (for both home version & professional version)
- Windows XP (for both home version & professional version)
- Windows 2003 Server
- Windows Vista
- Windows 2008 Server
- Windows CE 5.0 & 6.0
- Linux

2. Driver installation and Touch System calibration guide:

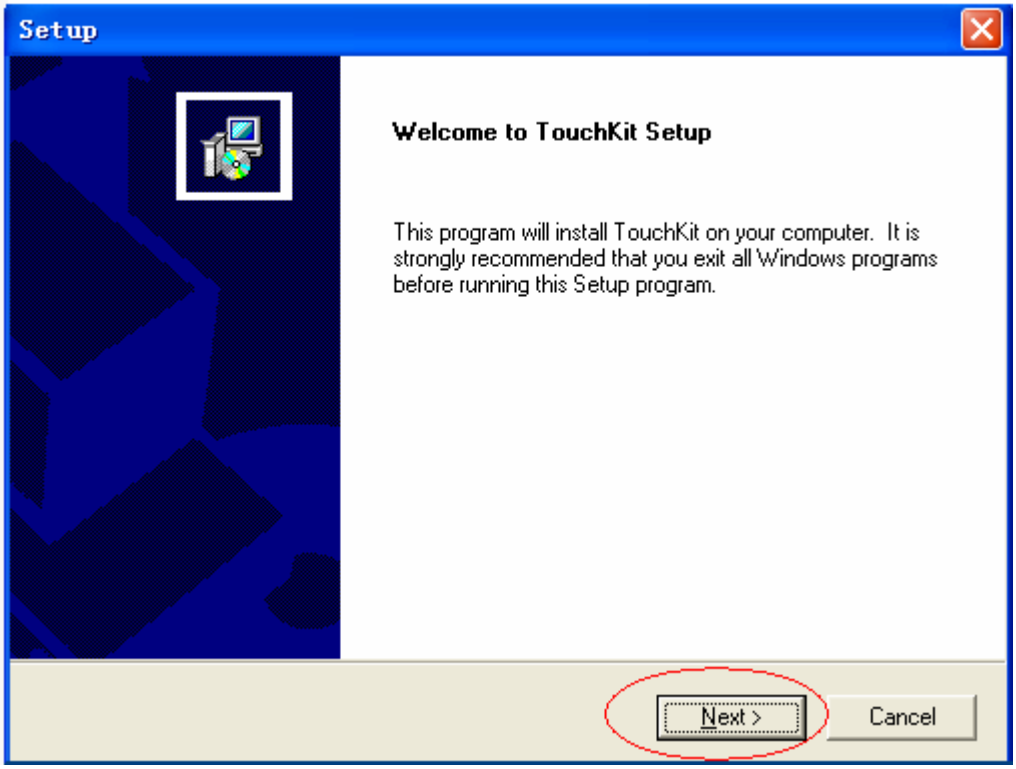
A. Preparation: connecting 5- wire resistive touch screen, controller and application device or computer with correct cable on the integration procedure.

B. Insert the V Touch Driver CD in to application system;

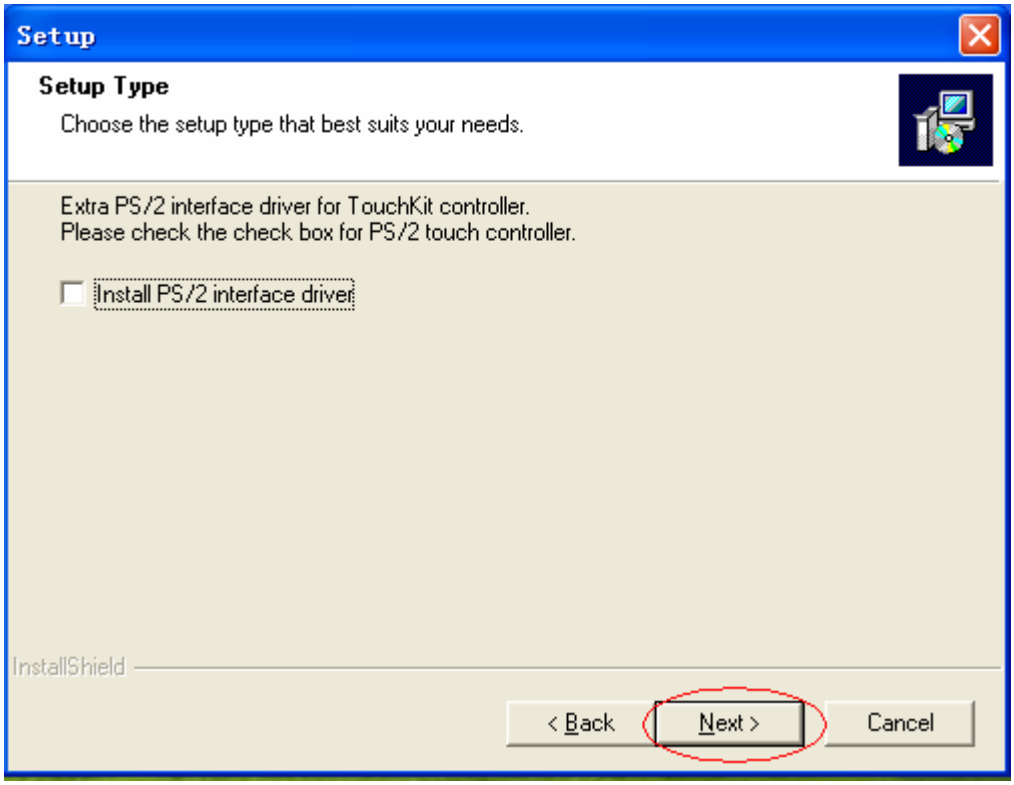
C. Find the instruction to complete the driver installation for Windows 2000/XP as following**:**

Double click at the setup.exe file to start software driver installation. Then, the setup

program will guide user to complete software installation.

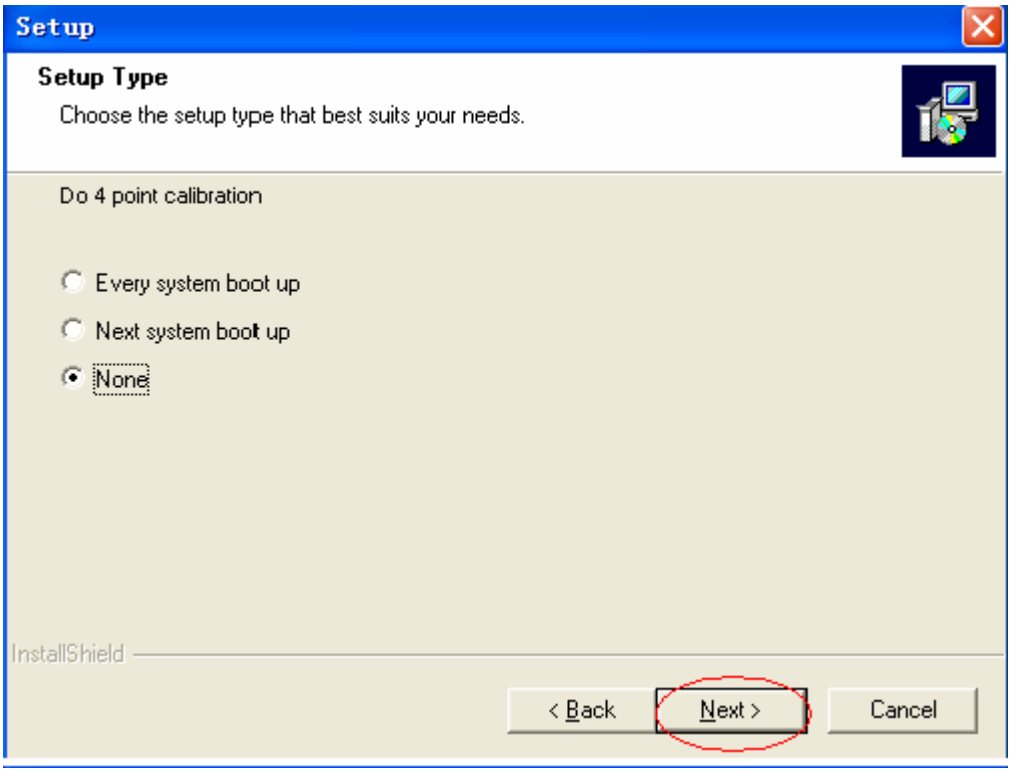

Setup
Welcome to TouchKit Setup
This program will install TouchKit on your computer. It is strongly recommended that you exit all Windows programs before running this Setup program.
Next >
Cancel

Press **Next** button to continue installation, then, a new dialog popped up as below,


Setup
Setup Type
Choose the setup type that best suits your needs.
Extra PS/2 interface driver for TouchKit controller.
Please check the check box for PS/2 touch controller.
Install PS/2 interface driver
InstallShield
< Back
Next >
Cancel

his dialog shows to ask user if the PS2 filter driver for touch screen to be installed. User can check this check for PS2 filter driver installation. The standard PS2 mice can still work well after this filter driver installed because Touchkit PS2 filter driver can work with both standard PS2 mice and PS2 touchscreen. But, this filter driver may does not work with other devices with the PS2 mouse port. After check or uncheck this check box, press **Next** button to continue installation. Then, it shows new dialog

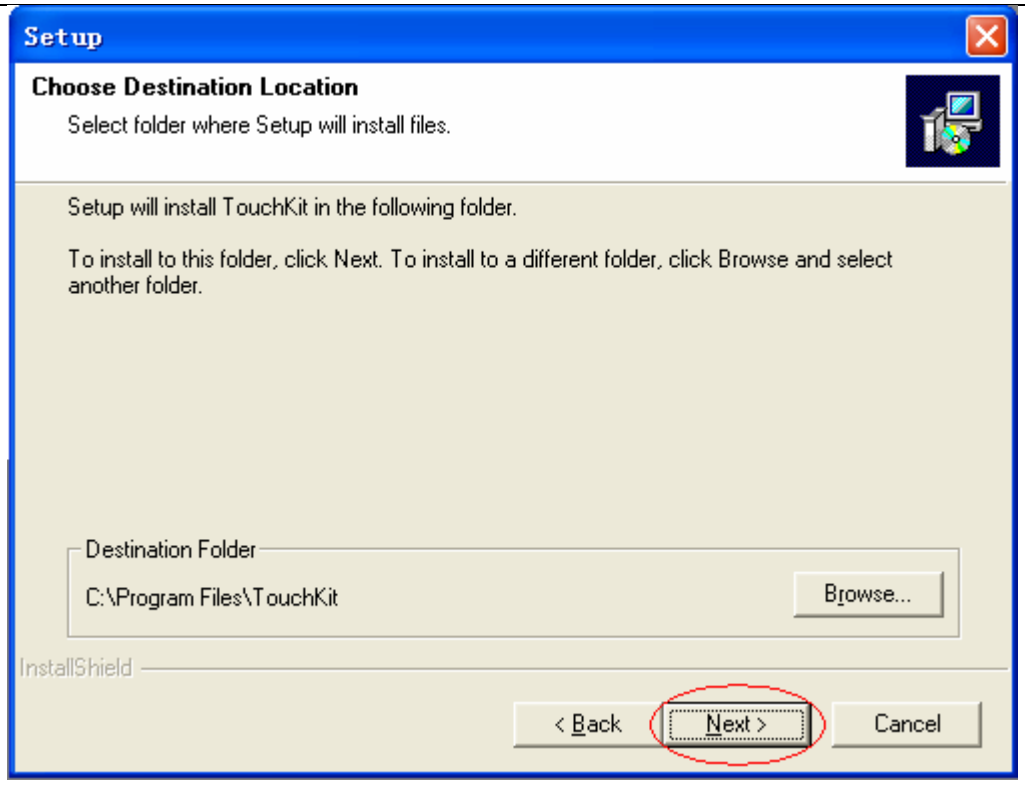
as below,



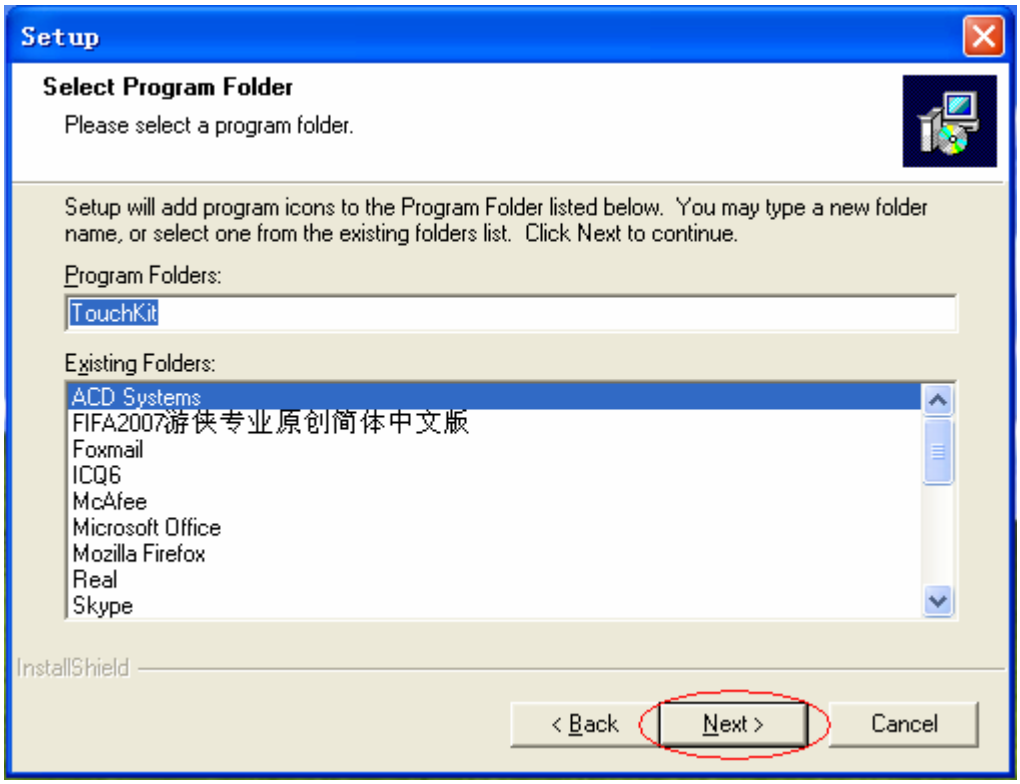
Also, Touchkit software provides user with 4 points calibration. If the system needs 4 points calibration to make sure the touch accuracy every system reboot, user can check every system boot up. If the system need 4 points calibration later, user can check none. Press **Next** button to continue installation. The setup program prompts a message box to hint

Information
If you are trying to install the USB touch device, please make sure that your touch monitor or touch controller's USB cable is plugged into the computer now.
确定

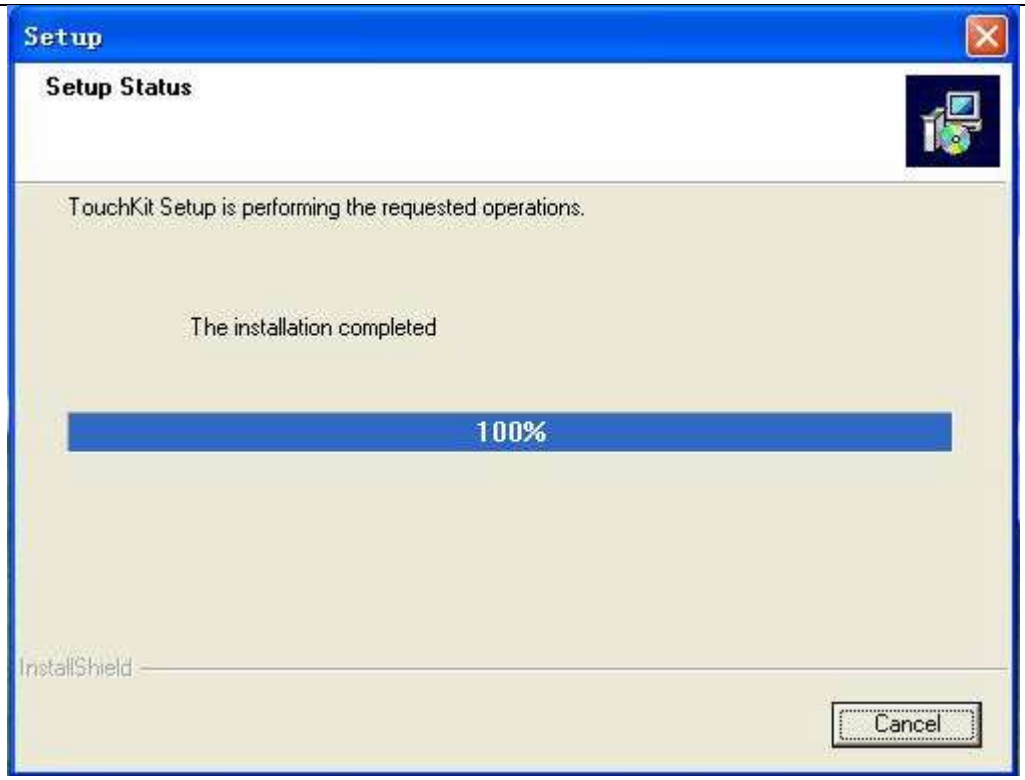
User to make sure that the Touchkit USB controller devices were well connected with system USB ports to guarantee the USB touchkit device drivers updated after driver installation. Then, just press **OK** to continue


Setup
Choose Destination Location
Select folder where Setup will install files.
Setup will install TouchKit in the following folder.
To install to this folder, click Next. To install to a different folder, click Browse and select another folder.
Destination Folder
C:\Program Files\TouchKit
Browse...
InstallShield
< Back
Next >
Cancel

A pop up window for user to choose the target path the files will be copied to. Then, Press **Next** to continue,



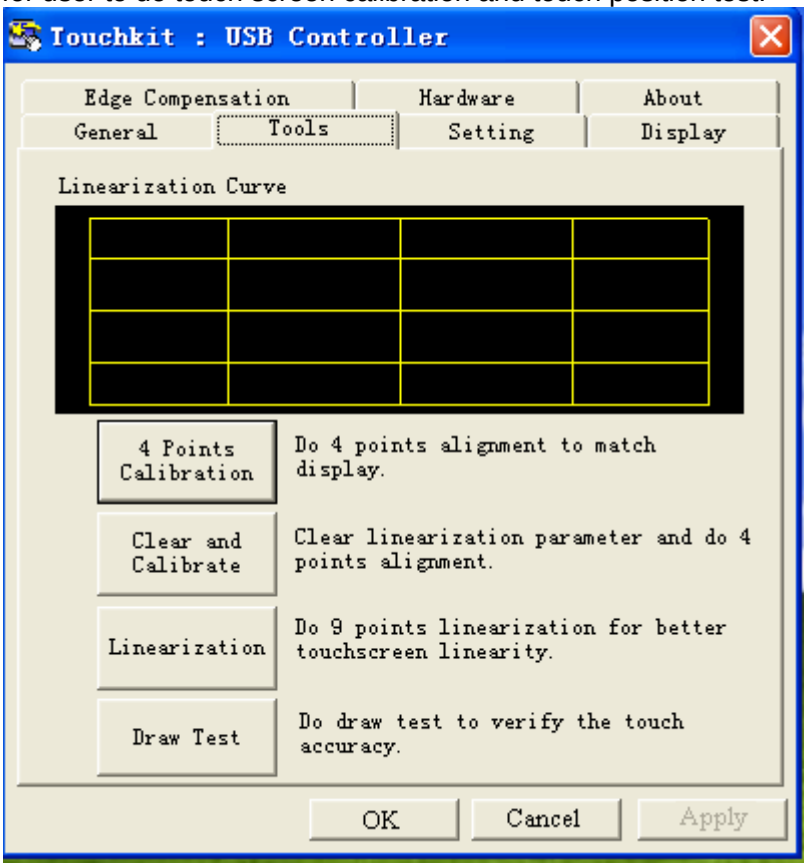
A dialog popped up for user to assign the target program folder. Press Next



The installation successfully completed.

• Part 12. How to Test the 5-Wires Resistive Touchscreen

Calibration, draw test tools and the linearity curve of the touch screen were listed shown as below for user to do touch screen calibration and touch position test.



User can do calibration or draw test by pressing the function push buttons.

1. Linearization Curve

Linearization curve of the touch screen is list in this page for reference and trouble shooting purpose.

2. 4 points calibration

It needs calibration before the touch screen can work accurately. Whenever the user feel the accuracy lost, user can do calibration again to get a more accuracy touch function.
Pressing this button, a new window will be popped-up at the location when the touch screen was mapped to area for this touch system to guide the user do 4 points calibration.
User should follows the guide to touch and hold the blinking X symbol in the calibration window until it does not blink to make sure that the utility can gather enough data for computation. In addition, a time line bar is shown in the bottom of the window to indicate time elapsed. If the touch screen was not touched before the time line bar going to right end, the calibration task will be terminated automatically.

3. Clear and Calibration

Press this button to erase the 25 points calibration/linearization parameters and force user to do 4 points calibration again. After 25 points calibration data was clear, the 4 points calibration data will be invalid. It needs to do 4 points calibration.

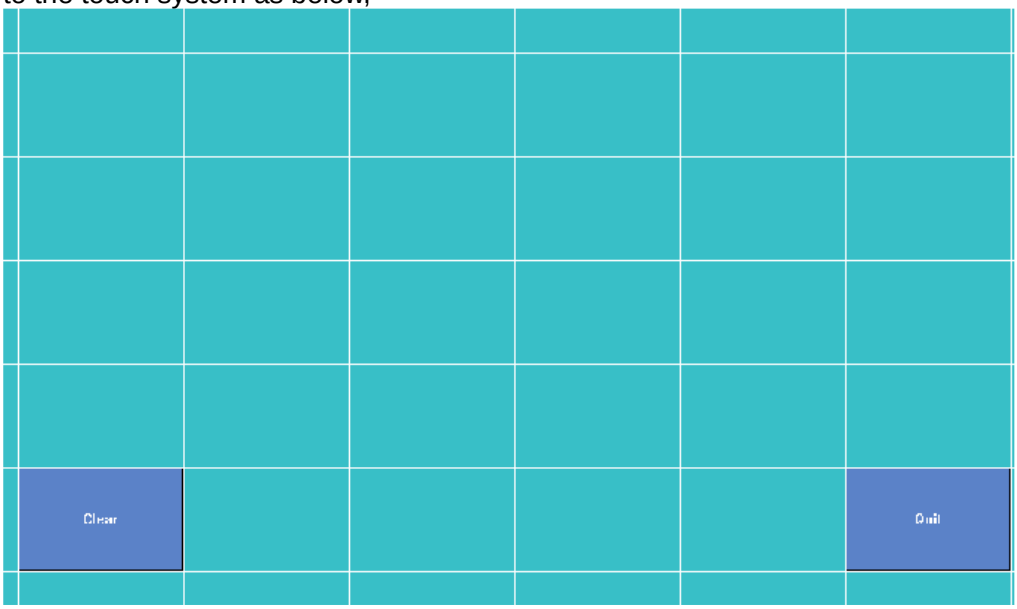
4. Linearization

Linearization (25 or 9 points calibration) function is used to compensate the touch screen linearity. After linearization completed, the linearity of the touch screen will be shown in the Linearity curve window.
Pressing this button, a new window will be popped-up at the location when the touch

screen was mapped to area for this touch system to guide the user do 25 points calibration. User should follows the guide to touch and hold the blinking X symbol in the calibration window until it does not blink to make sure that the utility can gather enough data for computation. In addition, a time line bar is shown in the bottom of the window to indicate time elapsed. If the touch screen was not touched before the time line bar going to right end, the calibration task will be terminated automatically.

5. Draw Test

This function is used for accuracy and performance check. Press this button and a new pop up window will be popped up in the location where the touch screen was mapped to the touch system as below,



User can press the Clear button to clear the window. Press Quit button to terminate this draw test.